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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/963,604 | 09/27/2001 | Eli Razon | RAZON-010 | 9362 |
| 7590 | 08/08/2005 | | EXAMINER | |
| John B. Sowell 182 Midfield Road Ardmore, PA 19003-3213 | | | HAMILTON, ISAAC N | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3724 | |

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Tata

Office Action Summary

Application No.

09/963,604

Applicant(s)

RAZON, ELI

Examiner

Isaac N. Hamilton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 12-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. Objections to the specification are hereby withdrawn.

Claim Rejections - 35 USC § 112

2. Rejections made under 35 USC 112 are hereby withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1, 2, 3, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cromeens (3,750,513) in view of Ono (4,688,540). Cromeens discloses spindle housing 19; cutting saw 2; coaxial spindle 1, 12, 16; center spindle 16; first mounting means in column 2, lines 17-20; first cutting saw blade 6; outer hollow spindle 12; second mounting means is inherent in column 2, lines 20-22; motor is inherently driving element 21; spindle positioning means 5; dicing saw blades 6, 7; saw blades 6 and 7 are capable of dicing wafers and singulating wafers; same rotational speed in column 1, line 13. Cromeens discloses everything as noted above, but does not disclose axial movement of the spindle housing, two spindle housings mounted side-by-side, spindle housings independently moveable in Y and Z axes, and does not disclose the motor directly coupled to one of the spindles and mounted in the spindle housing. However, Ono teaches axial movement of the spindle housing in column 8, lines 42-45; two

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spindle housings 134, 136 mounted side-by-side in figure 3 and teaches spindle housings independently moveable in Y and Z axes in columns 9-11, lines 49-21; motor 154A directly coupled to one of the spindles 152A via coupling means 156A and mounted in the spindle housing as shown in figure 3. It would have been obvious to provide axial movement of the spindle housing, two spindle housings mounted side-by-side, spindle housings independently moveable in Y and Z axes, and the motor directly coupled to one of the spindles and mounted in the spindle housing in Cromeens as taught by Ono in order to improve cutting efficiency. Note column 2, lines 55-58. Also note that the spindle housing and the spindles in Cromeens would replace each of the spindle housings 134, 136 and spindles 152A, 152 B in Ono.

5. Claims 5, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Cromeens and Ono in view of Kraft et al (4,455,910), hereafter Kraft. The combination discloses everything as noted above, but does not disclose an air bearing. However, Kraft teaches air bearing 21, 21'. It would have been obvious to provide an air bearing in the combination as taught by Kraft in order to minimize the forces used to move the hollow spindle. It is to be noted that the air bearings would be provided between the elements 16 and 12 in Ono, and between all of the elements 12-15 in Cromeens. Note movable actuating arm 42 and coupling means 62 in Cromeens '244 (3,630,244) as disclosed in column 1, line 50, of Cromeens.

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Cromeens, Ono and Kraft as applied to claims 5 and 6 above, and further in view of Mueller et al (5,024,127), hereafter Mueller. The combination discloses everything as noted above, but does not disclose a voice coil actuating means. However, Mueller teaches voice coil

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actuating means 34. It would have been obvious to provide voice coil actuating means in the combination as taught by Mueller in order to provide an actuating means which provides substantial moving power and speed while requiring relatively low electrical power and space. Note column 1, lines 65-68. Note that the movable actuating arm is element 13 in Cromeens, which has an air bearing coupling due to the air bearing juxtaposed the elements 12 and 13 as taught by Kraft above.

Response to Arguments

7. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection. The applicant asserts that blades 6 and 7 are not capable of dicing wafers, however, it is believed that it is possible to dice wafers with blades 6 and 7 because dicing is simply another name for cutting, and blades 6 and 7 certainly are capable of cutting.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isaac Hamilton whose telephone number is 571-272-4509. The examiner can normally be reached on Monday through Friday between 8am and 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N. Shoap can be reached on 571-272-4514. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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August 4, 2005



Allan N. Shoap
Supervisory Patent Examiner
Group 3700